

Abstract Submitted
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Charge Pre-Amplifier Functionality in Gas Electron Multiplier Digital Hadron Calorimeter at UTA HEATHER BROWN, CHANGHIE HAHN, WONJEONG KIM, JIA LI, CARLOS MEDINA, AKIHIRO NOZAWA, JACOB SMITH, ANDY WHITE, JAEHOON YU, University of Texas at Arlington, UTA HIGH ENERGY PHYSICS GROUP TEAM — A digital hadron calorimeter (DHCAL) is a sampling calorimeter that could provide the necessary jet energy resolution for International Linear Collider physics when used with the Particle Flow Algorithms (PFA). UTA's High Energy Physics (HEP) group has been developing a DHCAL using Gas Electron Multiplier (GEM) technology. GEM amplifies energy deposit from traversing charged particles using a high electric field applied across a copper-clad thin plastic foil. Given its hole spacing, GEM can resolve individual particles in a hadronic shower down to μm level. The components under consideration in this presentation are the output electronics, specifically, the charge pre-amplifiers supplied by Fermi National Accelerator Laboratory. In order for us to test GEM chambers, we need to make sure that all pre-amplifier cards function properly. In this study, we will present the plans for the beam tests, GEM chamber structure, test and certification procedure for the pre-amplifiers and the result of the tests.

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